902 EARTHWORK EQUIPMENT

902.01 THREE WHEELED OR TANDEM ROLLER

All rollers shall be in first-class mechanical condition and shall comply with the specification for the individual items of work.

All tandem and three-wheeled rollers shall be power driven, shall at all times be capable of being reversed smoothly and shall be free from backlash, loose-link motion, faulty steering mechanism, worn king bolts and bearings. Any roller of these types that has been improperly weighted or that has in any way been thrown out of its original balance by the application of attachments, not approved or not of the manufacturer's standard design, will not be permitted on any project; nor will any roller that does not have displayed thereon in permanent legible characters, the manufacturer's guaranteed net operating weight as distributed on each axle, be permitted on any project. The net operating weight shall be defined as the actual net weight plus 1/2 the total maximum weight of fuel and water.

902.02 TAMPING OR SHEEPSFOOT ROLLER

Rollers of this type may be either pull type or self-propelled and shall consist of a heavy metal drum with metal studs attached. The ends or tamping feet of the metal studs shall be an acceptable distance from the surface of the drum. The tamping feet shall be of spacing center to center in any direction and of cross-sectional area of each as approved by the Engineer.

Where more than one rolling unit is used, the individual units shall be pivoted to the main frame in such a manner that will permit the rolling units to adapt themselves to uneven surfaces and rotate independently. The minimum weight of the tamping roller under working conditions shall be 90 pounds per inch of drum. The load per tamping foot will be determined by dividing the total weight of roller by the number of tamping feet in one row parallel to the axis of the roller.

The drum shall be watertight and shall be provided with suitable plugs so that it may be weighted with water, sand, or other suitable material to meet the loading requirements.

902.03 PNEUMATIC TIRED ROLLER

Pneumatic tired rollers shall be of a multi-axle, multi-wheel type with smooth-tread pneumatic tires of equal size staggered on the axles at such spacings and overlaps as will provide uniform compactive pressure for the full compacting width of the roller, when operating. Oscillation of the wheels, if provided, shall be in vertical plane only. The pneumatic tired roller shall be capable (a) of being ballasted sufficiently to bring its loaded weight to at least 2-1/2 times its own weight, and (b) of exerting compactive ground contact pressures of at least 80 pounds per square inch.

In operation of the pneumatic tired roller, (a) all tires shall be inflated to equal air pressure, within a tolerance of 5 psi, and to the pressure designated for use; (b) the roller shall be ballasted to the extent required or designated; and (c) within limits prescribed above, the roller shall provide the compactive ground pressure per square inch which is most efficient under the conditions and for the purpose of its use, as designated by the Engineer.

The Contractor shall furnish to the Engineer charts or tabulations showing the contact areas and contact pressures for the full range of tire inflation pressures and for the full range of tire loadings for each

type and size of compactor tire furnished.

902.04 VIBRATORY ROLLERS

Vibratory rollers shall be self propelled, have a minimum drum diameter of 48 inches and be capable of developing a minimum frequency of 1600 vibrations per minute. A variable amplitude shall be required with a minimum of 2 settings. The unit static force shall be a minimum 125 pounds per inch with a total applied force of at least 325 pounds per inch. The roller must be equipped so that the vibrating can be turned off before stopping the roller or reversing direction. The rate of travel of roller while vibrating shall be 3 mph.

902.05 TAMPERS

All tampers of any kind must be of such size that they are capable of producing the specified results. Prior to use they must be approved by the Engineer. If a tamper consistently does not obtain specified results the equipment shall be removed from the job.

(A) MECHANICAL TAMPERS. Vibratory plate tampers shall be capable of exerting a minimum of 3,000 pounds of impact force. The exciter speed shall be a minimum of 4,500 rpm.

(B) RAMMERS. Rammers shall be capable of exerting a minimum of 2,500 pounds of impact force.

(C) PNEUMATIC TAMPS. Tampers of this type shall be capable of compacting soils materials to the specified density.